

CLAIMS

1. A printing system, comprising:
 - a print unit configured to apply a colorant to a test element and to a print media; and
 - a calibration system configured to:
 - measure one or more colorant levels of the colorant applied to the test element before the colorant is in a finished state;
 - measure one or more color values of the colorant applied to the print media after the colorant is in the finished state; and
 - establish a correlation between the one or more measured colorant levels and the one or more measured color values such that the correlation can be utilized to calibrate the print unit.
2. A printing system as recited in claim 1, wherein the calibration system is further configured to:
 - convert the one or more measured colorant levels to corresponding one or more predicted color values based on the correlation;
 - compare the one or more predicted color values to target color values; and
 - calibrate the print unit if a difference between the one or more predicted color values and the target color values exceeds a threshold value.

3. A printing system as recited in claim 1, wherein the test element is a print media transport belt.

4. A printing system as recited in claim 1, wherein the calibration system is further configured to calibrate the print unit to adjust a colorant level of the colorant applied to the test element.

5. A printing system as recited in claim 1, wherein the colorant is in the finished state after being fused onto the print media.

6. A printing system as recited in claim 1, wherein the colorant is in the finished state after being formed as a permanent image on the print media.

7. A printing system as recited in claim 1, wherein the calibration system comprises one or more sensors configured to measure the one or more colorant levels and the one or more color values.

8. A printing system as recited in claim 1, wherein the printing system is a printing device.

9. A printing system, comprising:

a print unit configured to apply a colorant to a test element; and

a calibration system configured to:

measure one or more colorant levels of the colorant applied to the test element before the colorant is in a finished state;

convert the one or more measured colorant levels to corresponding one or more predicted color values based on a correlation between colorant levels and color values;

compare the one or more predicted color values to target color values; and

calibrate the print unit if a difference between the one or more predicted color values and the target color values exceeds a threshold value.

10. A printing system as recited in claim 9, wherein the test element is a print media transport belt.

11. A printing system as recited in claim 9, wherein the print unit is further configured to apply the colorant to a print media, and wherein the calibration system is further configured to:

measure one or more color values of the colorant applied to the print media after the colorant is in the finished state; and

establish the correlation between the one or more measured colorant levels and the one or more measured color values.

12. A printing system as recited in claim 11, wherein the colorant is in the finished state after being fused onto the print media.

13. A printing system as recited in claim 11, wherein the colorant is in the finished state after being formed as a permanent image on the print media.

14. A printing system as recited in claim 11, wherein the calibration system comprises one or more sensors configured to measure the one or more colorant levels and the one or more color values.

15. A printing system as recited in claim 11, wherein the printing system is a printing device.

16. A printing system, comprising:

a print unit; and

a calibration system configured to calibrate the print unit, the calibration system having a selectable one of:

a first calibration mode configured to (i) measure colorant levels of a colorant applied to a test element, (ii) convert the measured colorant levels to predicted color values based on a correlation between colorant levels and color values, (iii) compare the predicted color values to target color values, and (iii) calibrate the print unit to adjust the colorant level applied to the test element if a difference between the predicted color values and the target color values exceeds a threshold value; and

a second calibration mode configured to (i) measure color values of the colorant applied to a print media after the colorant is in a finished state, and (ii) establish the correlation between the measured colorant levels and the measured color values.

17. A printing system as recited in claim 16, wherein the second calibration mode is selected less frequently than the first calibration mode to calibrate the print unit.

18. A printing system as recited in claim 16, wherein the calibration system comprises one or more optical sensors configured to measure the colorant levels and the color values.

19. A printing system as recited in claim 16, wherein the print unit is configured to fuse the colorant on to the print media such that the colorant is in the finished state.

20. A printing system as recited in claim 16, wherein the print unit is configured to form the colorant as a permanent image on to the print media in the finished state.

21. A printing system as recited in claim 16, wherein the printing system is a printing device.

22. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a printing device to:

measure colorant levels of a colorant applied to a test element before the colorant is in a finished state;

measure color values of the colorant applied to a print media after the colorant is in the finished state; and

establish a correlation between the measured colorant levels and the measured color values such that the correlation can be utilized to calibrate a print unit.

23. One or more computer-readable media as recited in claim 22, further comprising computer-executable instructions that, when executed, direct the printing device to:

convert the measured colorant levels to corresponding predicted color values based on the correlation;

compare the predicted color values to target color values; and

calibrate the print unit if a difference between the predicted color values and the target color values exceeds a threshold value.

24. One or more computer-readable media as recited in claim 22, further comprising computer-executable instructions that, when executed, direct the printing device to calibrate the print unit to adjust a colorant level of the colorant applied to the test element.

25. One or more computer-readable media as recited in claim 22, further comprising computer-executable instructions that, when executed, direct the printing device to operate in conjunction with a calibration system.

26. A method, comprising:
- measuring colorant levels of a colorant applied to a test element before the colorant is in a finished state;
 - measuring color values of the colorant applied to a print media after the colorant is in the finished state; and
 - establishing a correlation between the measured colorant levels and the measured color values such that the correlation can be utilized to calibrate a print unit.
27. A method as recited in claim 26, further comprising:
- converting the measured colorant levels to corresponding predicted color values based on the correlation;
 - comparing the predicted color values to target color values; and
 - calibrating a print unit if a difference between the predicted color values and the target color values exceeds a threshold value.
28. A method as recited in claim 26, further comprising fusing the colorant applied to the print media to form the colorant in the finished state.
29. A method as recited in claim 26, further comprising forming the colorant as a permanent image on the print media in the finished state.
30. A method as recited in claim 26, further comprising measuring the colorant levels and the color values with one or more sensors.

31. A method, comprising:

- measuring colorant levels of a colorant applied to a test element before the colorant is in a finished state;
- converting the measured colorant levels to corresponding predicted color values based on a correlation between colorant levels and color values;
- comparing the predicted color values to target color values; and
- calibrating a print unit if a difference between the predicted color values and the target color values exceeds a threshold value.

32. A method as recited in claim 31, further comprising:

- measuring color values of the colorant applied to a print media after the colorant is in the finished state; and
- establishing the correlation between the measured colorant levels and the measured color values.

33. A method as recited in claim 32, further comprising fusing the colorant applied to the print media to form the colorant in the finished state.

34. A method as recited in claim 32, further comprising forming the colorant as a permanent image on the print media in the finished state.

35. A method as recited in claim 32, further comprising measuring the colorant levels and the color values with one or more sensors.

36. A method for calibrating a printer comprising selecting at least one of a first calibration mode and a second calibration mode, wherein:

the first calibration mode includes:

measuring colorant levels of a colorant applied to a test element;

converting the measured colorant levels to predicted color values based on a correlation between colorant levels and color values;

comparing the predicted color values to target color values;

calibrating the printer if a difference between the predicted color values and the target color values exceeds a threshold value; and

the second calibration mode includes:

measuring color values of the colorant applied to a print media after the colorant is in a finished state; and

establishing the correlation between the measured colorant levels and the measured color values.

37. A method, comprising:

measuring colorant levels of a colorant applied on a test element;

printing the colorant on a print media;

forming the colorant as a permanent image on the print media;

measuring color values of the colorant formed as the permanent image on the print media; and

establishing a correlation between the measured colorant levels and the measured color values.

38. A method as recited in claim 37, further comprising:
converting the measured colorant levels to corresponding predicted color values based on the correlation;
comparing the predicted color values to target color values; and
calibrating a print unit if a difference between the predicted color values and the target color values exceeds a threshold value.

39. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a printing device to:

deposit colorant onto a test element;
measure colorant levels of the colorant in a pre-fused state;
print the colorant on a print media;
form the colorant as a permanent image on the print media;
measure color values of the colorant formed as the permanent image on the print media;
establish a correlation between the measured colorant levels and the measured color values;
convert the measured colorant levels to corresponding predicted color values based on the correlation;
compare the predicted color values to target color values; and
calibrate a print unit if a difference between the predicted color values and the target color values exceeds a threshold value.

40. A system for calibrating a printing device, comprising:
- means for depositing colorant onto a print media and onto a test element;
 - means for forming the colorant as a permanent image on the print media;
 - means for measuring colorant levels of the colorant deposited on the test element, and for measuring color values of the colorant after being formed as a permanent image on the print media;
 - means for establishing a correlation between the measured colorant levels and the measured color values;
 - means for converting measured colorant levels to corresponding predicted color values based on the correlation;
 - means for comparing the predicted color values to target color values;
 - and
 - means for calibrating a print unit if a difference between the predicted color values and the target color values exceeds a threshold value.